Exhibit A

Exhibit A

Claim	Proper Construction
1. A method of providing data blocks describing three-dimensional terrain to a renderer, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the method comprising:	• **terrain** – the surface features of an area of land; topography. • **data block** – an image of a terrain area that is composed of pixels, where each data block optionally also contains data associated with the image of the terrain area, such as data describing other objects that overlay the terrain; each data block has one particular resolution. • **data blocks belonging to a hierarchical structure** – data blocks that are organized into multiple levels of resolution, whereby each level contains data blocks at the same resolution, and each successive level contains data blocks of a higher resolution than those in the preceding level. • **resolution level** – the amount of detail per unit area. E.g. '189 patent, col. 3:6-9; col. 8:59-67.
receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level	• **renderer** – a software and/or hardware object that performs each of the following steps: (1) determines the coordinates of terrain data required to create an image and sends the needed coordinates along with a specified resolution level to another object; (2) receives the data blocks corresponding to the provided coordinates; and (3) uses the received data blocks to create an image • **coordinates in the terrain** – a pair of numerical coordinates, such as latitude and longitude or x and y coordinates, of a particular location in the terrain. • **indication of a respective resolution level** – data specifying the amount of detail per unit area corresponding to a level of resolution in the hierarchical structure of data blocks. • **receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level** – an object other than the renderer receiving from the renderer one or more pairs of numerical coordinates, such as latitude and longitude or x and y coordinates, of a particular location in the terrain, and that object at the same time also receiving from the renderer data specifying the amount of detail per unit area corresponding to a level of resolution in the hierarchical structure of data blocks.
providing the renderer with a first data block which includes data corresponding to the one or more coordinates, from a local memory;	• **first data block** – the data block stored in local memory that is the first data block to be provided to the renderer in response to the coordinates in the terrain and the indication of a respective resolution level received from the renderer. • **data corresponding to the one or more coordinates** – data representing the terrain and any additional optional data objects to be overlaid on the terrain that is found at the coordinates received from the renderer. • **local memory** – a memory that is part of the local computer that is performing the steps of the recited method. • **providing the renderer with a first data block which includes data corresponding to the one or more coordinates, from a local memory** – an object other than the renderer provides to the renderer a first data block which includes data representing the terrain and any additional optional data objects to be overlaid on the terrain that is found at the coordinates received from the renderer, this first data block being provided from a memory that is part of the

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	local computer that is performing the steps of the recited method.
downloading from a remote server one or more additional data blocks at a resolution level higher than the resolution level of the first block which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level.	• **downloading from a remote server one or more additional data blocks at a resolution level higher than the resolution level of the first block which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level** – downloading to the local computer from a separate computer one or more additional data blocks, each having an amount of detail per unit area greater than the amount of detail per unit area of the first data block already in the local memory, which additional data blocks include data corresponding to the coordinates received from the renderer, based upon determination of whether the first data block already in the local memory is not of the indicated amount of detail per unit area received from the renderer.
2. A method according to claim 1, wherein downloading the one or more additional data blocks comprises downloading the blocks from a succession of resolution levels, from the level immediately higher than the resolution level of the first block up to the maximal existent resolution level on the server not above the indicated resolution level.	• **downloading the blocks from a succession of resolution levels** – downloading blocks in order of resolution level. "When the rendering program requires a block including a new point or area for display, the cache manager first requests the block of the lowest resolution level which covers the area with the least detail and then requests subsequent blocks with successively increasing detail, until the block with the level of detail required by the rendering program is sent." Col. 3:65-4:4. • **level immediately higher than the resolution level of the first block** – the next level of the resolution level hierarchy that has an amount of detail per unit area greater than the amount of detail per unit area of the first block. • **maximal existent resolution level on the server** – the resolution level stored on the remote server that has the greatest amount of detail per unit area.
3. A method of providing data blocks describing three-dimensional terrain to a renderer, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the method comprising:	• **terrain** – same construction of this term as in claim 1. • **data block**– same construction of this term as in claim 1. • **data blocks belonging to a hierarchical structure**– same construction of this term as in claim 1. • **resolution level**– same construction of this term as in claim 1.
receiving from the renderer a plurality of coordinates in the terrain along with indication of a respective resolution level; said plurality of coordinates being included in a plurality of respective distinct blocks;	• **renderer**– same construction of this term as in claim 1. • **coordinates in the terrain**– same construction of this term as in claim 1. • **indication of a respective resolution level**– same construction of this term as in claim 1. • **receiving from the renderer a plurality of coordinates in the terrain along with indication of a respective resolution level** – an object other than the renderer receiving from the renderer two or more pairs of numerical coordinates, such as latitude and longitude or x and y coordinates, of particular locations in the terrain, and that object at the same time also receiving from the renderer data specifying the amount of detail per unit area corresponding to a level of resolution in the hierarchical structure of data blocks.

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	• **plurality of coordinates being included in a plurality of respective distinct blocks** – each pair of multiple pairs of coordinates are in a respective set of multiple blocks corresponding to that pair of coordinates.
providing the renderer with first data block which includes data corresponding to at least some of the plurality of coordinates from a local memory;	• **data corresponding to at least some of the plurality of coordinates** – data representing the terrain and any additional optional data objects to be overlaid on the terrain that is found at least at some of the coordinates received from the renderer. • **local memory**– same construction of this term as in claim 1. • **providing the renderer with first data block which includes data corresponding to at least some of the plurality of coordinates from a local memory** – an object other than the renderer provides to the renderer a first data block which includes data representing the terrain and any additional optional data objects to be overlaid on the terrain that is found at least at one pair of the coordinates received from the renderer, this first data block being provided from a memory that is part of the local computer that is performing the steps of the recited method.
downloading from a remote server one or more additional blocks which include data corresponding to a plurality of respective distinct blocks if the provided block from the local memory is not at the indicated resolution level, wherein blocks of lower resolution levels are downloaded before blocks of higher resolution levels.	• **data corresponding to a plurality of respective distinct blocks** – data representing the terrain and any additional optional data objects to be overlaid on the terrain that is included in a respective set of multiple blocks corresponding to a pair of coordinates. • **downloading from a remote server one or more additional data blocks which include data corresponding to a plurality of respective distinct blocks if the provided block from the local memory is not at the indicated resolution level** – downloading to the local computer from a separate computer one or more additional data blocks, which additional data blocks include data corresponding to a multiple respective distinct blocks, based upon determination of whether the first data block already in the local memory is not of the indicated amount of detail per unit area received from the renderer. • **wherein blocks of lower resolution levels are downloaded before blocks of higher resolution levels** – data blocks depicting a lesser amount of detail per unit area are downloaded before data blocks depicting a greater amount of detail per unit area are downloaded.
4. A method of providing data blocks describing three-dimensional terrain to a renderer, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the method comprising:	• **terrain**– same construction of this term as in claim 1. • **data block**– same construction of this term as in claim 1. • **data blocks belonging to a hierarchical structure**– same construction of this term as in claim 1. • **resolution level**– same construction of this term as in claim 1.
receiving from the renderer a plurality of coordinates in the terrain along with indication of a respective resolution level; said plurality of coordinates being included in a plurality of respective	• **renderer**– same construction of this term as in claim 1. • **coordinates in the terrain**– same construction of this term as in claim 1. • **indication of a respective resolution level**– same construction of this term as in claim 1. • **receiving from the renderer a plurality of coordinates in the terrain along with indication of a respective resolution level**– same construction of this

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distinct blocks;	term as in claim 3. • **plurality of coordinates being included in a plurality of respective distinct blocks**– same construction of this term as in claim 3.
providing the renderer with first data block which includes data corresponding to at least some of the plurality of coordinates from a local memory;	• **data corresponding to at least some of the plurality of coordinates**– same construction of this term as in claim 3. • **local memory**– same construction of this term as in claim 1. • **providing the renderer with first data block which includes data corresponding to at least some of the plurality of coordinates from a local memory**– same construction of this term as in claim 3.
downloading from a remote server one or more additional blocks which include data corresponding to a plurality of respective distinct blocks if the provided block from the local memory is not at the indicated resolution level, wherein of lower resolution levels are downloaded before blocks of higher resolution levels and the block for which the coordinates were provided last among blocks at a common resolution level is downloaded first.	• **data corresponding to a plurality of respective distinct blocks**– same construction of this term as in claim 3. • **downloading from a remote server one or more additional data blocks which include data corresponding to a plurality of respective distinct blocks if the provided block from the local memory is not at the indicated resolution level**– same construction of this term as in claim 3. • **wherein of lower resolution levels are downloaded before blocks of higher resolution levels**– This claim uses the term "wherein of lower resolution levels", which is nonsensical. To the extent that the patentee intended to refer to "wherein blocks of lower resolution levels", however, Defendants construe this term as this term was construed in claim 3. • **the block for which the coordinates were provided last among blocks at a common resolution level is downloaded first—**if the renderer provides one set of coordinates followed by another set of coordinates and the two sets of coordinates are included in different blocks of the same resolution level (i.e., containing the same amount of detail per unit area) the block corresponding to the most recently provided set of coordinates is downloaded before the block corresponding to the set of coordinates that the renderer provided first is downloaded. "Preferably, when the processor requires a number of blocks, the first block sent is the block of the lowest level. If two blocks of the same level are required, the one which is requested last is sent first. Thus, when the viewpoint changes, the blocks sent first are for the new viewpoint, and only afterwards are blocks sent for the old viewpoint." Col. 3:41-46.
5. A method of providing data blocks describing three-dimensional terrain to a renderer, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the method comprising:	• **terrain**– same construction of this term as in claim 1. • **data block**– same construction of this term as in claim 1. • **data blocks belonging to a hierarchical structure**– same construction of this term as in claim 1. • **resolution level**– same construction of this term as in claim 1.
receiving from the renderer a plurality of coordinates in the terrain along with indication of a respective resolution level; said	• **renderer**– same construction of this term as in claim 1. • **coordinates in the terrain**– same construction of this term as in claim 1. • **indication of a respective resolution level**– same construction of this term as in claim 1.

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plurality of coordinates being included in a plurality of respective distinct blocks;	• **receiving from the renderer a plurality of coordinates in the terrain along with indication of a respective resolution level**– same construction of this term as in claim 3. • **plurality of coordinates being included in a plurality of respective distinct blocks**– same construction of this term as in claim 3.
providing the renderer with first data block which includes data corresponding to at least some of the plurality of coordinates from a local memory;	• **data corresponding to at least some of the plurality of coordinates**– same construction of this term as in claim 3. • **local memory**– same construction of this term as in claim 1. • **providing the renderer with first data block which includes data corresponding to at least some of the plurality of coordinates from a local memory**– same construction of this term as in claim 3.
downloading from a remote server one or more additional blocks which include data corresponding to a plurality of respective distinct blocks if the provided block from the local memory is not at the indicated resolution level, wherein the blocks are downloaded according to the order in which the coordinates were provided.	• **data corresponding to a plurality of respective distinct blocks**– same construction of this term as in claim 3. • **downloading from a remote server one or more additional data blocks which include data corresponding to a plurality of respective distinct blocks if the provided block from the local memory is not at the indicated resolution level**– same construction of this term as in claim 3. • **the blocks are downloaded according to the order in which the coordinates were provided—**the blocks corresponding to the provided coordinates are downloaded in the order that the coordinates were provided by the renderer.
6. A method according to claim 5, wherein downloading the blocks comprises downloading first the block for which the coordinates were provided last.	• **downloading first the block for which the coordinates were provided last—**downloading first the block corresponding to the coordinates that were most recently provided by the renderer.
7. A method of providing data blocks describing three-dimensional terrain to a renderer, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the method comprising:	• **terrain**– same construction of this term as in claim 1. • **data block**– same construction of this term as in claim 1. • **data blocks belonging to a hierarchical structure**– same construction of this term as in claim 1. • **resolution level**– same construction of this term as in claim 1.
receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level;	• **renderer**– same construction of this term as in claim 1. • **coordinates in the terrain**– same construction of this term as in claim 1. • **indication of a respective resolution level**– same construction of this term as in claim 1. • **receiving from the renderer a one or more coordinates in the terrain along**

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	with indication of a respective resolution level– same construction of this term as in claim 1.
providing the renderer with a first data block which includes data corresponding to the one or more coordinates, from a local memory;	• **data corresponding to the one or more coordinates**– same construction of this term as in claim 1. • **local memory**– same construction of this term as in claim 1. • **providing the renderer with a first data block which includes data corresponding to at least some of the plurality of coordinates, from a local memory**– same construction of this term as in claim 3.
downloading from a remoter server one or more additional data blocks which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level;	• **remoter server**— This claim uses the term "remoter server", which is nonsensical. To the extent that the patentee intended to refer to a "remote server", however, Defendants construe this term as this term was construed in claim 1. • **downloading from a remoter server one or more additional data blocks which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level—** downloading to the local computer from a separate computer one or more additional data blocks, which additional data blocks include data corresponding to the coordinates received from the renderer, based upon determination of whether the first data block already in the local memory is not of the indicated amount of detail per unit area received from the renderer.
and downloading from a remote server excess blocks not currently needed by the renderer to fill up the local memory when not downloading blocks required by the renderer.	• **excess blocks not currently needed by the renderer—**blocks other than the blocks corresponding to coordinates provided by the renderer. "Preferably, renderer 72 determines the exact blocks needed and calls for them using their (x,y) coordinates and their resolution level 44. Alternatively or additionally, renderer 72 specifies, for each resolution level 44, the coordinates of the boundaries of the necessary areas, and cache manager 74 determines the identities of the required blocks 42. Preferably, when only a small part of a block 42 is required, cache manager 74 orders only the required sub-blocks 43 in order to save transmission time. On the average, rendering a view image requires between about 20 and 200 sub-blocks 43 of various resolution levels 44." Col. 14:10-20. "If renderer 72 needs the downloaded block (i.e., it was not ordered solely to fill cache memory 32, as described herein below), it is passed to the renderer, as indicated by block 124." Col. 15:47-50. • **fill up the local memory—**blocks are added to local memory until local memory is full. "Preferably, when connections 76 are not in use bringing blocks 42 required by renderer 72, cache manager 74 downloads blocks in the area of the viewpoint to fill cache memory 32. Preferably, cache manager 74 attempts to fill cache memory 32 with a sufficient number of blocks, such that for any view direction of the current viewpoint, all blocks 42 required by renderer 72 are stored in cache memory 32." Col. 12:16-20. "Preferably, when open cache memory 34 is full, a least recently used (LRU) method is used to determine which sub-block 43 is to be discarded to make room for a new sub-block. A preferred LRU method is described in the above-mentioned Ser. No. 08/939,948 patent application. Alternatively or additionally, any other suitable method of memory management may be used to manage cache memory 32 and/or open cache memory 34." Col. 12:50-57.

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	• **When not downloading blocks required by the renderer—**during periods of time when the local computer is not downloading blocks corresponding to coordinates provided by the renderer. • **downloading from a remote server excess blocks not currently needed by the renderer to fill up the local memory when not downloading blocks required by the renderer—** downloading to the local computer from a separate computer one or more additional data blocks, which additional data blocks are other than the blocks corresponding to coordinates provided by the renderer, until local memory is full, during periods of time when the local computer is not downloading blocks corresponding to coordinates provided by the renderer.
8. A method according to claim 7, wherein downloading the data blocks comprised downloading the blocks via the Internet.	
9. A method according to claim 7, wherein the renderer renders a view from a current viewpoint, and wherein downloading the excess blocks comprises filling the local memory with substantially all of the blocks surrounding a point in the terrain seen from the current viewpoint within a predetermined distance range.	• **renderer—**same construction of this term as in claim 1. • **renders a view—**displays an image of terrain. • **filling the local memory** – blocks are added to local memory until local memory is filled. • **filling the local memory with substantially all of the blocks surrounding a point in the terrain seen from the current viewpoint within a predetermined distance range –**substantially all the blocks on all sides out to an established distance boundary around a point in the terrain that is seen from the current viewpoint are added to local memory until local memory is filled.
10. A method according to claim 9, wherein downloading excess blocks comprises filling the local memory with substantially the same number of blocks from each different resolution level.	• **filling the local memory**—same construction of this term as in claim 9.
11. A method according to claim 9, wherein filling the local memory comprises filling the memory with substantially all the blocks within the range from a lower resolution level before downloading blocks of higher resolution levels.	• **filling the local memory**—same construction of this term as in claim 9.

Claim	Proper Construction
12. Apparatus for providing data blocks describing three-dimensional terrain to a render, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the apparatus comprising:	• This claim uses the term "render" rather than "renderer," which is nonsensical. To the extent that the patentee intended to refer to a "renderer," however, Defendants provide the following construction. • **terrain** – same construction of this term as in claim 1. • **data block** – same construction of this term as in claim 1. • **data blocks belonging to a hierarchical structure** – same construction of this term as in claim 1. • **resolution level** – same construction of this term as in claim 1.
a local memory which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer;	• **local memory** – same construction of this term as in claim 1.
a communication link, through which the memory receives the data blocks from a remote server;	
a processor which receives one or more specified coordinates along with indication of a respective resolution level from a renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory, and downloads over the communication link one or more data blocks of a resolution level higher than the resolution level of the first block which include data corresponding to the one or more coordinates if the first block is not from the indicated level.	• **renderer** – same construction of this term as in claim 1. • **receives one or more specified coordinates along with indication of a respective resolution level from a renderer** – an object running on a processor, other than the renderer, receives from the renderer one or more pairs of numerical coordinates, such as latitude and longitude or x and y coordinates, of a particular location in the terrain, and that object at the same time also receives from the renderer data specifying the amount of detail per unit area corresponding to a level of resolution in the hierarchical structure of data blocks. • **provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory** – an object running on a processor, other than the renderer, provides to the renderer a first data block which includes data representing the terrain and any additional optional data objects to be overlaid on the terrain that is found at the coordinates received from the renderer, this first data block being provided from a memory that is part of the local computer that is performing the steps of the recited method. • **downloads over the communication link one or more data blocks of a resolution level higher than the resolution level of the first block which include data corresponding to the one or more coordinates if the first block is not from the indicated level** – downloads over the communication link to the local computer from a separate computer one or more additional data blocks, each having an amount of detail per unit area greater than the amount of detail per unit area of the first data block already in the local memory, which additional data blocks include data corresponding to the coordinates received from the renderer, based upon determination of whether the first data block already in the local memory is not of the indicated amount of detail per unit area received from the renderer.
13. Apparatus for providing	• This claim uses the term "render" rather than "renderer," which is nonsensical.

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data blocks describing three-dimensional terrain to a render, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the apparatus comprising:	To the extent that the patentee intended to refer to a "renderer," however, Defendants provide the following construction. • **terrain** – same construction of this term as in claim 1. • **data block** – same construction of this term as in claim 1. • **data blocks belonging to a hierarchical structure** – same construction of this term as in claim 1. • **resolution level** – same construction of this term as in claim 1.
a local memory which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer;	• **local memory** – same construction of this term as in claim 1.
a communication link, through which the memory receives the data blocks from a remote server;	
a processor which receives one or more specified coordinates along with indication of a respective resolution level from a renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory, and downloads over the communication link blocks from the resolution level of the first block up to a maximal resolution level of blocks stored on the server that is not above the indicated resolution level which include data corresponding to the one or more coordinates if the first block is not from the indicated level.	• **renderer** – same construction as in claim 1. • **receives one or more specified coordinates along with indication of a respective resolution level from a renderer** – same construction as in claim 12. • **provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory** – same construction as in claim 12. • **downloads over the communication link blocks from the resolution level of the first block up to a maximal resolution level of blocks stored on the server that is not above the indicated resolution level which include data corresponding to the one or more coordinates if the first block is not from the indicated level—** downloads over the communication link to the local computer from a separate computer one or more additional data blocks, each having a resolution level equal to or greater than the resolution level of the first data block already in the local memory but not exceeding the highest resolution level stored on the remote server nor the resolution level indicated by the renderer, each additional data block including data corresponding to the coordinates received from the renderer, based upon determination of whether the first data block already in the local memory is not of the indicated amount of detail per unit area received from the renderer.
14. Apparatus for providing data blocks describing three-dimensional terrain to a render, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of	• This claim uses the term "render" rather than "renderer," which is nonsensical. To the extent that the patentee intended to refer to a "renderer," however, Defendants provide the following construction. • This claim uses the term "one or coordinates" rather than "one or more coordinates," which makes this term nonsensical. To the extent that the patentee intended to refer to "one or more coordinates", however, Defendants

Claim	Proper Construction
different resolution levels, the apparatus comprising:	provide the following construction. • **terrain** – same construction of this term as in claim 1. • **data block** – same construction of this term as in claim 1. • **data blocks belonging to a hierarchical structure** – same construction of this term as in claim 1. • **resolution level** – same construction of this term as in claim 1.
a local memory which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer;	• **local memory** – same construction of this term as in claim 1.
a communication link, through which the memory receives the data blocks from a remote server;	
a processor which receives one or more specified coordinates along with indication of a respective resolution level from a renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory, and downloads over the communication link blocks of lower resolution levels before blocks of higher resolution levels which include data corresponding to the one or coordinates if the first block is not from the indicated level.	• **renderer** – same construction as in claim 1. • **receives one or more specified coordinates along with indication of a respective resolution level from a renderer** – same construction as in claim 12. • **provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory** – same construction as in claim 12. • **downloads over the communication link blocks of lower resolution levels before blocks of higher resolution levels which include data corresponding to the one or coordinates if the first block is not from the indicated level—** downloads over the communication link to the local computer from a separate computer additional data blocks depicting a lesser amount of detail per unit area before downloading data blocks depicting a greater amount of detail per unit area, which additional data blocks include data corresponding to the coordinates received from the renderer, based upon determination of whether the first data block already in the local memory is not of the indicated amount of detail per unit area received from the renderer.
15. Apparatus for providing data blocks describing three-dimensional terrain to a render, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the apparatus comprising:	• This claim uses the term “render” rather than “renderer,” which is nonsensical. To the extent that the patentee intended to refer to a “renderer,” however, Defendants provide the following construction. • This claim uses the term “one or coordinates” rather than “one or more coordinates,” which makes this term nonsensical. To the extent that the patentee intended to refer to “one or more coordinates”, however, Defendants provide the following construction. • **terrain** – same construction of this term as in claim 1. • **data block** – same construction of this term as in claim 1.

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	• **data blocks belonging to a hierarchical structure** – same construction of this term as in claim 1. • **resolution level** – same construction of this term as in claim 1.
a local memory which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer;	• **local memory** – same construction of this term as in claim 1.
a communication link, through which the memory receives the data blocks from a remote server;	
a processor which receives one or more specified coordinates along with indication of a respective resolution level from a renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory, and downloads over the communication link blocks which include data corresponding to the one or coordinates if the first block is not from the indicated level, wherein the processor downloads blocks of lower resolution levels before blocks of higher resolution levels and the block for which the coordinates were provided last among blocks from a common resolution level is downloaded first.	• **renderer** – same construction as in claim 1. • **receives one or more specified coordinates along with indication of a respective resolution level from a renderer** – same construction as in claim 12. • **provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory** – same construction as in claim 12. • **downloads over the communication link blocks which include data corresponding to the one or coordinates if the first block is not from the indicated level, wherein the processor downloads blocks of lower resolution levels before blocks of higher resolution levels and the block for which the coordinates were provided last among blocks from a common resolution level is downloaded first—** downloads over the communication link to the local computer from a separate computer additional data blocks which include data corresponding to the coordinates received from the renderer, based upon determination of whether the first data block already in the local memory is not of the indicated amount of detail per unit area received from the renderer; wherein the processor downloads additional data blocks depicting a lesser amount of detail per unit area before downloading data blocks depicting a greater amount of detail per unit area, and among the blocks of equal amount of detail per unit area, the block for which the renderer most recently provided coordinates is downloaded first.
16. Apparatus for providing data blocks describing three-dimensional terrain to a render, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels,	• This claim uses the term “render” rather than “renderer,” which is nonsensical. To the extent that the patentee intended to refer to a “renderer,” however, Defendants provide the following construction. • **terrain** – same construction of this term as in claim 1. • **data block** – same construction of this term as in claim 1. • **data blocks belonging to a hierarchical structure** – same construction of this

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the apparatus comprising:	term as in claim 1. • **resolution level** – same construction of this term as in claim 1.
a local memory which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer;	• **local memory** – same construction of this term as in claim 1.
a communication link, through which the memory receives the data blocks from a remote server;	
a processor which receives one or more specified coordinates along with indication of a respective resolution level from a renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory, and downloads over the communication link one or more additional blocks according to the order in which the coordinates were provided which include data corresponding to the one or more coordinates if the first block is not from the indicated level.	• **renderer** – same construction as in claim 1. • **receives one or more specified coordinates along with indication of a respective resolution level from a renderer** – same construction as in claim 12. • **provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory** – same construction as in claim 12. • **downloads over the communication link one or more additional blocks according to the order in which the coordinates were provided which include data corresponding to the one or more coordinates if the first block is not from the indicated level. –** downloads over the communication link to the local computer from a separate computer one or more additional data blocks, which additional data blocks include data corresponding to the coordinates received from the renderer, in the order in which coordinates were provided by the renderer, based upon determination of whether the first data block already in the local memory is not of the indicated amount of detail per unit area received from the renderer.
17. Apparatus according to claim 16, wherein the processor downloads in first precedence the block for which the coordinates were provided last.	• **downloads in first precedence the block for which the coordinates were provided last**—downloads first the block corresponding to the coordinates that were most recently provided by the renderer.
18. Apparatus for providing data blocks describing three-dimensional terrain to a render, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels,	• This claim uses the term “render” rather than “renderer,” which is nonsensical. To the extent that the patentee intended to refer to a “renderer,” however, Defendants provide the following construction. • This claim uses the term “one or coordinates” rather than “one or more coordinates,” which makes this term nonsensical. To the extent that the patentee intended to refer to “one or more coordinates”, however, Defendants provide the following construction.

Claim	Proper Construction
the apparatus comprising:	• **terrain** – same construction of this term as in claim 1. • **data block** – same construction of this term as in claim 1. • **data blocks belonging to a hierarchical structure** – same construction of this term as in claim 1. • **resolution level** – same construction of this term as in claim 1.
a local memory which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer;	• **local memory** – same construction of this term as in claim 1.
a communication link, through which the memory receives the data blocks from a remote server;	
a processor which receives one or more specified coordinates along with indication of a respective resolution level from a renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory, downloads over the communication link blocks which include data corresponding to the one or coordinates if the first block is not from the indicated level; and	• **renderer** – same construction as in claim 1. • **receives one or more specified coordinates along with indication of a respective resolution level from a renderer** – same construction as in claim 12. • **provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory** – same construction as in claim 12. • **downloads over the communication link blocks which include data corresponding to the one or coordinates if the first block is not from the indicated level—** downloads over the communication link to the local computer from a separate computer additional data blocks, which additional data blocks include data corresponding to the coordinates received from the renderer, based upon determination of whether the first data block already in the local memory is not of the indicated amount of detail per unit area received from the renderer.
downloads excess blocks not currently needed by the renderer to fill up the local memory when the processor is not downloading blocks required by the renderer.	• **downloads excess blocks not currently needed by the renderer to fill up the local memory when the processor is not downloading blocks required by the renderer**— downloads blocks other than the blocks corresponding to coordinates provided by the renderer, until local memory is full, during periods of time when the processor is not downloading blocks corresponding to coordinates provided by the renderer.
19. Apparatus according to claim 18, wherein the renderer renders a view from a current viewpoint and the processor fills the local memory with substantially all the blocks surrounding a point in the terrain seen from the current viewpoint in a predetermined range.	• **renderer—**same construction of this term as in claim 1. • **renders a view—**same construction of this term as in claim 9. • **fills the local memory** – blocks are added to local memory until local memory is filled. • **in a predetermined range**—inside of an area that has been established in advance and defined by the distance from some point in the terrain to an established distance boundary.

Claim	Proper Construction
	• **the processor fills the local memory with substantially all the blocks surrounding a point in the terrain seen from the current viewpoint in a predetermined range–** substantially all the blocks on all sides out to an established distance boundary around a point in the terrain that is seen from the current viewpoint are added by the processor to local memory until local memory is filled.
20. Apparatus according to claim 19, wherein the processor fills the local memory with substantially the same number of blocks from each resolution level.	• **fills the local memory**—same construction of this term as in claim 19.
21. Apparatus according to claim 19, wherein the processor fills the local memory with substantially all the blocks from a lower level before downloading blocks of higher resolution levels.	• **fills the local memory**—same construction of this term as in claim 19. • **fills the local memory with substantially all the blocks from a lower level before downloading blocks of higher resolution levels—**substantially all of the blocks from a resolution level depicting a lesser amount of detail per unit area are added to local memory before downloading data blocks depicting greater amounts of detail per unit area.
22. Apparatus according to claim 18, wherein the communication link comprises a connection to the internet.	
23. The method of claim 7, wherein the coordinates relate to the coordinates of a predetermined course of a flight vehicle.	• **course of a flight vehicle—**the path or route of a flying vehicle, such as a virtual airplane. "It is another object of some aspects of the present invention to provide methods and apparatus for training a pilot to fly a preplanned flight course while allowing the pilot to see the view seen at any point along the flight course at substantially any desired angle." Col. 2:1-5. "In preferred embodiments of the present invention, a processor simulates flight of a virtual airplane along a selected route." Col. 2:15-17. • **coordinates of a predetermined course of a flight vehicle—**coordinates describing a preset path or route of a flying vehicle. • **relate to the coordinates of a predetermined course of a flight vehicle—**are associated with the coordinates describing a preset path or route of a flying vehicle.
24. The apparatus of claim 18, wherein said data blocks relate to a course of a flight vehicle.	• **course of a flight vehicle—**same construction of this term as in claim 23. • **relate to a course of a flight vehicle—**are associated with the path of a flying vehicle.